11. Claims 3, 10 and 17 were rejected as obvious under 35 U.S.C. §103(a) over STRAUCH et al in view of SCHIAPPA et al, and further in view of FERRIS (3,661,610).

As to the §112 indefiniteness rejection, applicants continue to respectfully submit that the use of the term "about" is quite clear as to scope in the present application, and that the §112 rejection should be reconsidered and withdrawn. The terminology "about" as used in the claims appeared not only in the original claims as filed, but also in the original description in the specification at pages 3 and 4. Indeed, the MPEP §2173.05(b)A expressly permits the use of the term "about" as being definite, and nothing exists in the present disclosure which would render that term indefinite. Moreover, the prior art is not so close that the percentages with which "about" is used need be precisely delineated to define over such prior art.

In the present invention a pigment coating is applied onto a paper support and the pigment is particularly selected to be of a specific particle size and particle size distribution. This allows a thinner synthetic resin coating because it enables a very smooth surface. Generally, one can say that a smooth surface decreases the adherence of the polyolefin resin. However and in spite of the lower roughness in the invention, the inventors have surprisingly discovered that the

underlying pigment coating provides an excellent adherence to the polyolefin resin applied onto the pigment coating. Moreover, it is possible to apply the synthetic resin by extrusion much faster than on non-coated supports without any defects in the polyolefin resin layer. Also, the support material of the invention and as set forth in the claims allows a reduction in the amount of the synthetic resin which is typically a polyolefin.

NAYDOWSKI et al. discloses a $CaCO_3$ talc coating pigment slurry which is coated on paper to provide good printability (col. 3, 1.31-46, col. 8, 1.41-53). This calcium carbonate/talc pigment coating is then directly printed upon by gravure printing.

In contrast the present claimed invention differs from the disclosure of NAYDOWSKI et al. due to the presence of a polyolefin resin layer on the pigment coating. In NAYDOWSKI et al. there is no further polyolefin coating on the pigment coating. Moreover, NAYDOWSKI et al. simply teaches an average statistical particle diameter of 0.4 to 1.5 μm. In contrast, the pigment coating of the present claimed invention contains at least 5% particles with a narrow grain distribution with about 70% of these pigment particles having a size of less than about 1 μm, and at least 40% by weight of the particles having a grain size of 0.35 to 0.8 μm. There is no such teaching in NAYDOWSKI et al.

In the last Office Action it is admitted that the particle size distribution as set forth in the claims is not taught in NAYDOWSKI et al., but it is argued that NAYDOWSKI et al. shows an overlap with the claimed distribution of the present invention. In the alternative, it is argued that a person skilled in the art would have found it obvious to adjust the particle size distribution of the pigment to meet the claim requirements. This argument fails because the intentions of NAYDOWSKI et al. and those in the present invention are entirely different. Accordingly, the claims clearly define over NAYDOWSKI et al. by a different structure and different particle size distribution in the pigment coating on the paper support.

SCHIAPPA et al. discloses a durable high gloss water-based coating composition which contains a mixture of ethylene acrylic acid (EAA) and N-methyl-pyrrolidone (NMP). This gloss providing mixture is considered to be a replacement for nitro-cellulose and related coatings which provide gloss for example to picture cards. This composition may be applied on commonly conventional clay-coated paper and is applied from aqueous media.

SCHIAPPA et al. is silent as to the particle size distribution of the clay coated onto the raw paper. The claims clearly define over SCHIAPPA et al. due to the claimed pigment particle size distribution and because of the claimed polyolefin resin and not the EAA and NMP

gloss providing polymer mixture of SCHIAPPA et al.

Indeed, the coatings of the invention and of SCHIAPPA et al. have entirely different purposes. The polyolefin coating as claimed in the present invention is to avoid penetration of developer fluids into the paper core of the support. The EAA and NMP polymer mixture provides gloss. Because the EAA and NMP polymer mixture is applied from aqueous media, this coating will not withstand treatment in water or an aqueous photographic developer bath as in the present invention. EAA and NMP are hydrophilic resins. Moreover, a photographic emulsion is applied onto the resin coating in the present invention which is then provided with a photographic image. In contrast, the article of SCHIAPPA et al. is, for example, a clay-coated paper which receives an image or is printed and is then subsequently coated with the gloss providing EAA and NMP polymer mixture. Thus, the intentions of SCHIAPPA et al. and the present invention are entirely different from each other.

Accordingly, the present claimed invention clearly defines over SCHIAPPA et al. due to the particle size distribution of the pigment coating on the paper and the different resin coatings.

Also at column 5, lines 34 to 42 SCHIAPPA et al. states that its resin mixture is much superior in gloss as compared to polyolefin laminated coatings, and that its mixture is intended to replace

polyolefin as set forth in the present claims. Therefore, SCHIAPPA et al. teaches away from the present invention in which a polyolefin coating is specifically claimed.

Accordingly, even when the teachings of NAYDOWSKI et al. and SCHIAPPA et al. are combined, a support material still does not result which has either the particle size distribution or a polyolefin coating on a pigment coating as set forth in the claims.

HIORNS et al. discloses a pigment material for use in the coating of paper and, in particular, papers to be used in an electro photographic printer (col. 1, 1.8-18). The pigment composition is formed by two components having different particle size distributions. Component A has a D50 value from 0.4 to 0.7 μm. This means 50% of the particles have an average diameter between 0.4 and 0.7 μm. The particle size range of the particles of component B is 2 to 10 μm. Component B has a larger particle size distribution and larger particle sizes than the pigment set forth in the claims of the present application.

Component B of HIORNS et al. must be present in the pigment mixture of this patent. The larger particles appear to be necessary for the success of the teaching of HIORNS et al. According to a first aspect, the coating including the aforementioned pigment mixture

provides an anti-blocking effect (col. 2, 1.32-35). And, according to the teaching in column 2, lines 34 to 45 of HIORNS et al., a minor amount of course pigment particles present in the coating composition provided by component B of the pigment material beneficially causes the coated surface to have localized points of protrusion in the surface profile. These points of protrusion serve to reduce the area of contact between adjacent coated sheets or layers and, therefore, allow the adjacent sheets or layers to be more easily separated. The bimodal pigment distribution, i.e. two particle size distributions with different and intentionally higher peaks of HIORNS et al. teaches away from the invention as set forth in the claims of the present application.

In the present invention it is important that there be a good adherence between pigment and polyolefin resin coating in spite of the smooth pigment layer on the bare paper. In contrast to HIORNS et al., in the present invention it is important that separation of the resin coating from the support with the pigment coating be avoided. When one considers the mixture of components A and B disclosed in HIORNS et al., it becomes clear that the overall particle size distribution is different from the present invention. Accordingly, the present claimed invention clearly defines over HIORNS et al. because of the different pigment particle size distributions and the resin coating of the present invention on the pigment coating.

It is improper to assume, as has been done in the paragraph bridging pages 6 and 7 of the Office Action, that the skilled person in the art would have found it obvious to adjust the particle size distribution and that the motivation for doing so would have been to control gloss. The pigment coating of the present invention which is localized under the resin coating is not important for gloss. Instead it is important to provide a smooth surface which allows applying a smooth coating of polyolefin. Moreover, as previously mentioned, HIORNS et al. teaches a bimodal particle size distribution. In contrast, the present invention employs a narrow particle size distribution which does not have two particle size peaks.

STRAUCH et al. discloses a mineral filler, such as calcium carbonate, which contains at most 15% by weight of particles which are smaller than 0.2 μm, and 80 to 95% of the particles are preferably smaller than 1 μm. The filler is for use in glossy paper coating compositions. The reason why STRAUCH et al. reduces the amount of particles having particle sizes of less than 0.2 μm is to increase the gloss of the coating mixture. According to STRAUCH et al., particles that are too small result in deteriorated gloss (col. 3, 1.3-10). STRAUCH et al. considers the pigment particle size distribution essential for gloss. In contrast, if gloss is to be achieved for the support of the present invention, the support is subjected to a calendaring treatment. The particle size of the pigment particles in

the pigment coating of the invention are not at all considered to cause gloss in the material of the invention. Gloss is not the issue of the present invention.

VIRATANEN is directed to a pigment particle product and its use as filler and coating pigments in paper manufacture. The calcium carbonate of VIRATANEN comprises from 30 to 90% by weight of particles of precipitated calcium carbonate in the size range from 30 nm to 100 nm. This particle size range is clearly smaller than the particle sizes of the present claimed invention.

And, not only does the present claimed invention clearly define over the teachings of VIRATANEN because of the difference in particle size distribution, but also in the presence of a polyolefin coating on the pigment coating which is not disclosed or suggested by VIRATANEN.

In conclusion, even when the disclosures of all of the above discussed prior art are combined, a support material still does not result as set forth in the claims (1) in which the particle size distribution is as claimed, and (2) in which a polyolefin coating is present on the pigment coating. As to the latter no coating whatsoever is even applied to a pigment layer in the primary references NAYDOWSKI et al., HIORNS et al. or STRAUCH et al., or the secondary reference

VIRATANEN. In SCHIAPPA et al. a coating is applied on a clay coated paper, but it is expressly not a polyolefin. It is ethylene acrylic acid (EAA) and N-methyl-pyrrolidone (NMP).

For the above reasons, it is respectfully submitted that all of the elected claims remaining in the present application, claims 1-6, 8, 10, 11, 15-18 and 20-25, are in condition for allowance. Accordingly, favorable reconsideration and allowance are requested.

Respectfully submitted,

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